EmETX-i702

USER'S MANUAL

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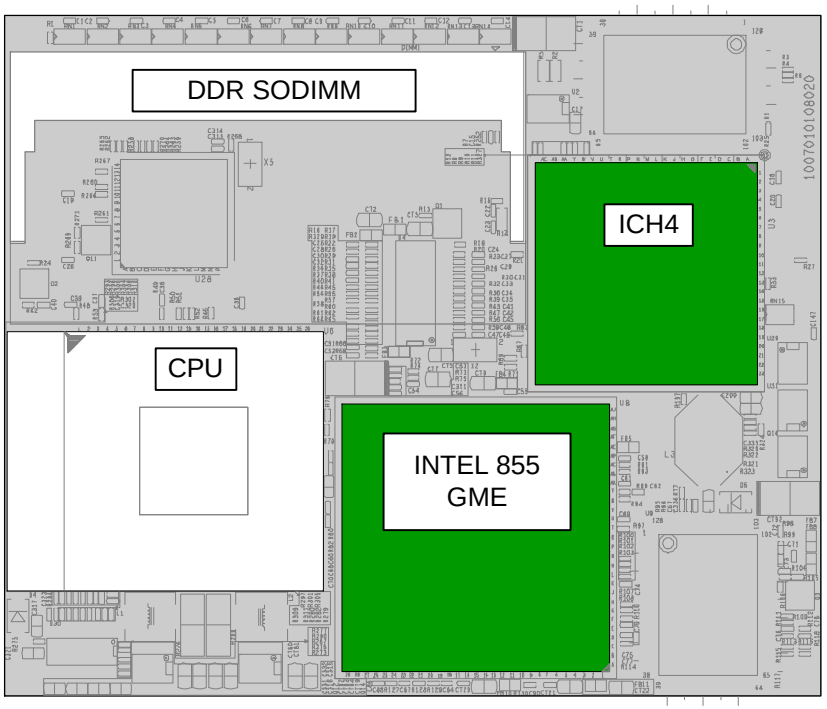
Specifications

Item	Specification
CPU (Option)	Intel(R) Pentium(R) M Processor 1.6G - 2.0GHz (FSB 400MHz), PGA Intel(R) Celeron(R) M Processor 1.3G - 1.5GHz (FSB 400MHz), PGA
Cache	Built in CPU
Processor socket	Socket 479
Memory (Option)	One 200-pin SO-DIMM socket, PC2100 DDR SDRAM for up to 1GB
Chipset	Intel(R) 852GM+ICH4
BIOS	Award BIOS
VGA	Built in Intel(R) 815GME *1
Keyboard/Mouse connector	One Keyboard , One Mouse *1
Serial I/F	Two 16550 UART ports *1 Baud rate: 50 - 115,200bps (programmable)
Parallel I/F	One high-speed parallel port, support SPP/EPP/ECP mode *1
On board expansion bus	Four PCI bus slots possibility are mounting on a base board. *1
LAN Port	100BASE-TX/10BASE-T, Intel ICH4 integrated controller *1
IDE I/F	Two EIDE ports, up to four IDE devices, support Ultra DMA100 *1
SATA I/F	None
FDD I/F	None
Compact Flash Slot	None
SSD Socket	None
USB Port	4ch USB 2.0 complaint ports *1
IrDA	IrDA 1.1 complaint port *1
RAID	None
Audio	AC97 CODEC for speaker out, line in, CD Audio in, microphone in. *1
Watchdog Timer	Software programmable 255 levels (1 - 255sec). Reset occurrence at the time of time up.
General-purpose I/F	None
Hardware Monitor	Monitoring of the temperature of CPU, power supply voltage, and fan speed
RTC/CMOS *2	RTC/CMOS data backed up by Lithium battery The backup time of the Lithium battery is over 4 years at 25°C. The clock is accurate ±3 minutes/month at 25°C. (When using PBE-1000)
Power Management	Power management setup via BIOS
Bus specification / Size (mm)	None / 114(W) x 95(D)
DC Power Requirements	+5VDC ±5%
Power supply specifications (Max.)	Pentium M 1.6GHz +5VDC 7A
Operating temperature / Operating Humidity	0 - 50°C /10 - 90%RH (No condensation)
Storage temperature	-30 - 85°C
Floating dust particles	Not to be excessive
Corrosive gases	None
Weight	85g
Operating System Support	Windows XP Professional Windows 2000 Professional

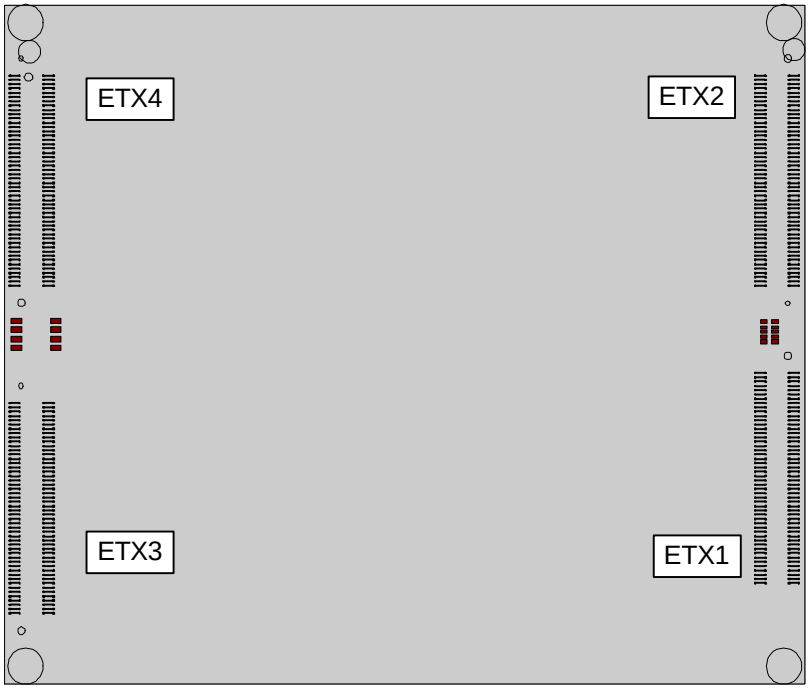
*1 Wiring to the ETX connector and the connectors for the each devices, please mount them to the base board.

*2 When this product is equipped on the base board at first time, you have to clear CMOS. See PBE-1000 Quick Guide.

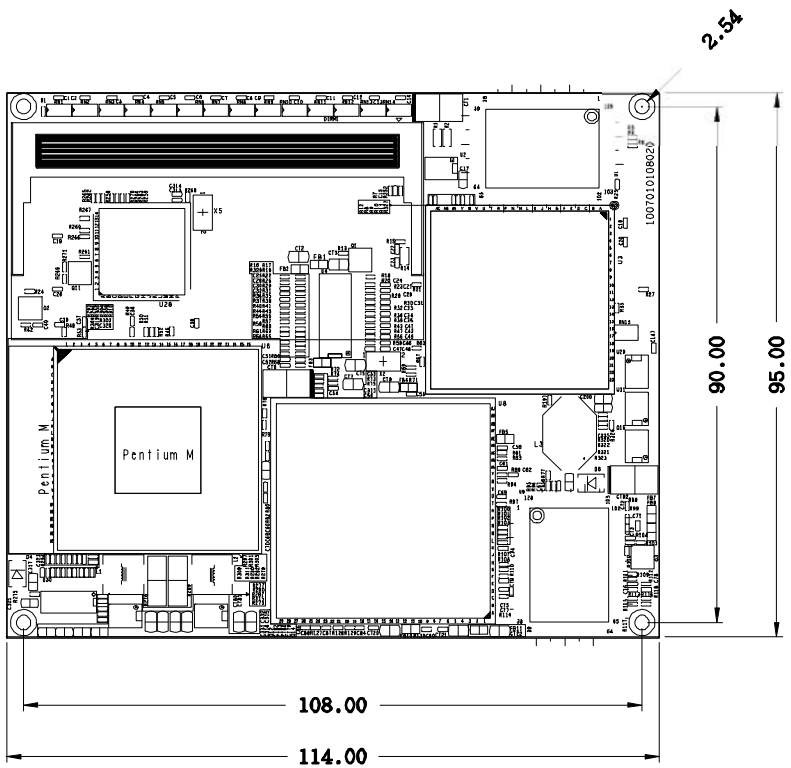
Board Layout Top View (Front)



Board Layout Top View (Back)



Board Dimension



UNIT: mm

Jumper/Connector Quick Reference

Connectors

Lable	Function
ETX1	PCI Bus, USB, Audio
ETX2	ISA Bus
ETX3	VGA,LCD,Video,COM1,COM2,LPT,IrDA,KB/MS
ETX4	IDE1,IDE2,Ethernet,Miscellaneous

ETX Connector

ETX1

1	GND	GND	2
3	PCICLK3	PCICLK4	4
5	GND	GND	6
7	PCICLK1	PCICLK2	8
9	REQ#3	GNT#3	10
11	GNT#2	VCC3	12
13	REQ#2	GNT#1	14
15	REQ#1	VCC3	16
17	GNT#0	N.C	18
19	VCC	VCC	20
21	SERIRQ	REQ#0	22
23	AD0	VCC3	24
25	AD1	AD2	26
27	AD4	AD3	28
29	AD6	AD5	30
31	CBE#0	AD7	32
33	AD8	AD9	34
35	GND	GND	36
37	AD10	AUXAL	38
39	AD11	MIC	40
41	AD12	AUXAR	42
43	AD13	ASVCC	44
45	AD14	SNDL	46
47	AD15	ASGND	48
49	CBE#1	SNDR	50
51	VCC	VCC	52
53	PAR	SERR#	54
55	PERR#	N.C	56
57	PME#	USB2-	58
59	LOCK#	DEVSEL#	60
61	TRDY#	USB3-	62
63	IRDY#	STOP#	64
65	FRAME#	USB2+	66
67	GND	GND	68
69	AD16	CBE#2	70
71	AD17	USB3+	72
73	AD19	AD18	74
75	AD20	USB0-	76
77	AD22	AD21	78
79	AD23	USB1-	80
81	AD24	CBE#3	82
83	VCC	VCC	84
85	AD25	AD26	86
87	AD28	USB0+	88
89	AD27	AD29	90
91	AD30	USB1+	92
93	PCIRST#	AD31	94
95	INTR#C	INTR#D	96
97	INTR#A	INTR#B	98
99	GND	GND	100

ETX2

1	GND	GND	2
3	SD14	SD15	4
5	SD13	MASTER#	6
7	SD12	DREQ7	8
9	SD11	DACK#7	10
11	SD10	DREQ6	12
13	SD9	DACK#6	14
15	SD8	DREQ5	16
17	MEMW#	DACK#5	18
19	MEMR#	DREQ0	20
21	LA17	DACK#0	22
23	LA18	IRQ14	24
25	LA19	IRQ15	26
27	LA20	IRQ12	28
29	LA21	IRQ11	30
31	LA22	IRQ10	32
33	LA23	IO16#	34
35	GND	GND	36
37	SBHE#	M16#	38
39	SA0	OSC	40
41	SA1	BALE	42
43	SA2	TC	44
45	SA3	DACK#2	46
47	SA4	IRQ3	48
49	SA5	IRQ4	50
51	VCC	VCC	52
53	SA6	IRQ5	54
55	SA7	IRQ6	56
57	SA8	IRQ7	58
59	SA9	SYSCLK	60
61	SA10	REFCH#	62
63	SA11	DREQ1	64
65	SA12	DACK#1	66
67	GND	GND	68
69	SA13	DREQ3	70
71	SA14	DACK#3	72
73	SA15	IOR#	74
75	SA16	IOW#	76
77	SA18	SA17	78
79	SA19	SMEMR#	80
81	IOCHRDY	AEN	82
83	VCC	VCC	84
85	SD0	SMEMW#	86
87	SD2	SD1	88
89	SD3	NOWS#	90
91	DREQ2	SD4	92
93	SD5	IRQ9	94
95	SD6	SD7	96
97	IOCHK#	RSTDRV	98
99	GND	GND	100

ETX3

1	GND	GND	2
3	R	B	4
5	HSY	G	6
7	VSY	DDCK	8
9	N.C/DE	DDDA	10
11	TX2CLK#	TX2D3#	12
13	TX2CLK+	TX2D3+	14
15	GND	GND	16
17	TX2D1+	TX2D2+	18
19	TX2D1#	TX2D2#	20
21	GND	GND	22
23	TX1D3#	TX2D0+	24
25	TX1D3+	TX2D0#	26
27	GND	GND	28
29	TX1D2#	TX1CLK+	30
31	TX1D2+	TX1CLK#	32
33	GND	GND	34
35	TX1D0+	TX1D1+	36
37	TX1D0#	TX1D1#	38
39	VCC	VCC	40
41	N.C.	N.C	42
43	N.C	BLON	44
45	BIASON	DIGON	46
47	N.C	N.C	48
49	N.C	N.C	50
51	N.C	N.C	52
53	VCC	GND	54
55	STB#	AFD#	56
57	I.C	PD7	58
59	IRRX	ERR#	60
61	IRTX	PD6	62
63	RXD2	INIT#	64
65	GND	GND	66
67	RTS#2	PD5	68
69	DTR#2	SLIN#	70
71	DCD#2	PD4	72
73	DSR#2	PD3	74
75	CTS#2	PD2	76
77	TXD#2	PD1	78
79	RI#2	PD0	80
81	VCC	VCC	82
83	RXD1	ACK#	84
85	RTS#1	BUSY#	86
87	DTR#1	PE	88
89	DCD#1	SLCT#	90
91	DSR#1	MSCLK	92
93	CTS#1	MSDAT	94
95	TXD#1	KBCLK	96
97	RI#1	KBDAT	98
99	GND	GND	100

ETX4

1	GND	GND	2
3	SV_SB	PWGIN	4
5	PS_ON	SPEAKER	6
7	PWRBTN#	BATT	8
9	N.C	LILED	10
11	WDTOUT	ACTLED	12
13	ROMKBCS#	SPEEDLED	14
15	N.C	12CLK	16
17	VCC	VCC	18
19	OVCR#	GPCS#	20
21	EXTSMI#	12DAT	22
23	SMBCLK	SMBDAT	24
25	SIDE_CS3#	CPUFAN	26
27	SIDE_CS1#	DASP#	28
29	SIDE_A2	PIDE_CS3#	30
31	SIDE_A0	PIDE_CS1#	32
33	GND	GND	34
35	PD33/66 SEL	PIDE_A2	36
37	SIDE_A1	PIDE_A0	38
39	SIDE_INTRQ	PIDE_A1	40
41	SD33/66 SEL	N.C	42
43	SIDE_ACK#	PIDE_INTRQ	44
45	SIDE_RDY	PIDE_ACK#	46
47	SIDE_IOR#	PIDE_RDY	48
49	VCC	VCC	50
51	SIDE_IOW#	PIDE_IOR#	52
53	SIDE_DRQ	PIDE_IOW#	54
55	SIDE_D15	PIDE_DRQ	56
57	SIDE_D0	PIDE_D15	58
59	SIDE_D14	PIDE_D0	60
61	SIDE_D1	PIDE_D14	62
63	SIDE_D13	PIDE_D1	64
65	GND	GND	66
67	SIDE_D2	PIDE_D13	68
69	SIDE_D12	PIDE_D2	70
71	SIDE_D3	PIDE_D12	72
73	SIDE_D11	PIDE_D3	74
75	SIDE_D4	PIDE_D11	76
77	SIDE_D10	PIDE_D4	78
79	SIDE_D5	PIDE_D10	80
81	VCC	VCC	82
83	SIDE_D9	PIDE_D5	84
85	SIDE_D6	PIDE_D9	86
87	SIDE_D8	PIDE_D6	88
89	RING IN	WOL	90
91	RXD-	PIDE_D8	92
93	RXD+	SIDE_D7	94
95	TXD-	PIDE_D7	96
97	TXD+	HDRST#	98
99	GND	GND	100

Interrupt Request (IRQ)

IRQ Address	Description
IRQ 00	System timer
IRQ 01	Standard 101/102-Key or Microsoft Natural Keyboard
IRQ 02	Programmable interrupt controller
IRQ 03	Communications Port (COM2)
IRQ 04	Communications Port (COM1)
IRQ 05	PCI Multimedia Audio Device
IRQ 05	PCI System Management Bus
IRQ 05	IRQ Holder for PCI Steering
IRQ 07	Printer Port (LPT1)
IRQ 08	System CMOS/real time clock
IRQ 09	PCI Universal Serial Bus
IRQ 09	IRQ Holder for PCI Steering
IRQ 0A	Standard Universal PCI to USB Host Controller
IRQ 0A	Standard Universal PCI to USB Host Controller
IRQ 0A	IRQ Holder for PCI Steering
IRQ 0A	Standard PCI Graphics Adapter (VGA)
IRQ 0B	Intel(R) PRO/100 VE Network Connection
IRQ 0B	Standard Universal PCI to USB Host Controller
IRQ 0B	IRQ Holder for PCI Steering
IRQ 0C	PS/2 Compatible Mouse Port
IRQ 0D	Numeric data processor
IRQ 0E	Primary IDE controller (single fifo)
IRQ 0E	Standard Dual PCI IDE Controller
IRQ 0F	Secondary IDE controller (single fifo)
IRQ 0F	Standard Dual PCI IDE Controller

Direct Memory Access (DMA)

DMA	Description
4	Direct memory access controller

Ports Input/Output (IO)

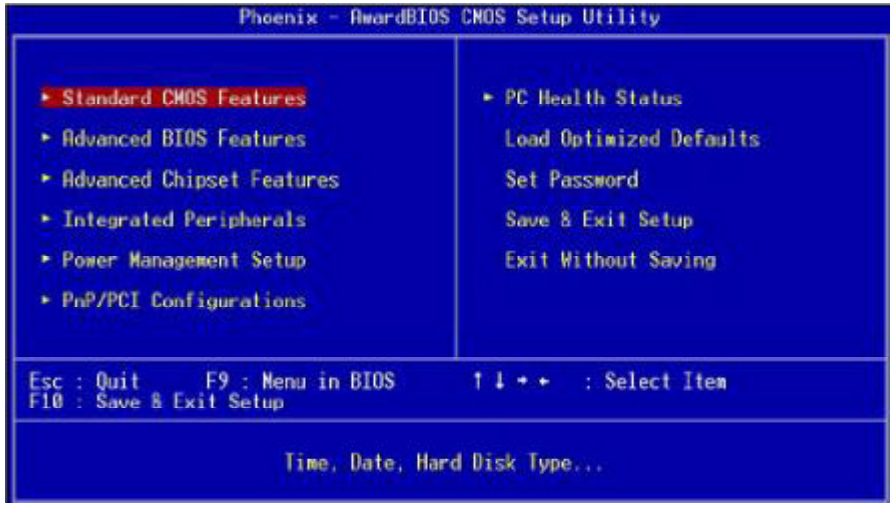
I/O Address	Description
Memory 00000000-0009FFFF	System board extension for PnP BIOS
Memory 00000000-FFFFFFFF	PCI standard PCI-to-PCI bridge
Memory 00000000-FFFFFFFF	PCI standard PCI-to-PCI bridge
Memory 00000000-FFFFFFFF	PCI standard PCI-to-PCI bridge
Memory 000A0000-000AFFFF	Standard PCI Graphics Adapter (VGA)
Memory 000B0000-000BFFFF	Standard PCI Graphics Adapter (VGA)
Memory 000C0000-000CC7FF	Standard PCI Graphics Adapter (VGA)
Memory 000D8000-000D97FF	Intel(R) PRO/100 VE Network Connection
Memory 000D9800-000DBFFF	Motherboard resources
Memory 000F0000-000F3FFF	Motherboard resources
Memory 000F4000-000F7FFF	Motherboard resources
Memory 000F8000-000FFFFF	Motherboard resources
Memory 00100000-00FFFFFF	System board extension for PnP BIOS
Memory D0000000-D7FFFFFF	Standard PCI Graphics Adapter (VGA)
Memory D8000000-DFFFFFFF	Standard PCI Graphics Adapter
Memory E0000000-E3FFFFFF	PCI standard host CPU bridge
Memory E4000000-E4000FFF	Intel(R) PRO/100 VE Network Connection
Memory E4000000-E40FFFFF	PCI standard PCI-to-PCI bridge
Memory E4100000-E417FFFF	Standard PCI Graphics Adapter
Memory E4180000-E41FFFFF	Standard PCI Graphics Adapter (VGA)
Memory E4200000-E42003FF	PCI Universal Serial Bus
Memory E4201000-E42011FF	PCI Multimedia Audio Device
Memory E4202000-E42020FF	PCI Multimedia Audio Device
Memory FEC00000-FEC0FFFF	System board extension for PnP BIOS
Memory FEE00000-FEE0FFFF	System board extension for PnP BIOS
Memory FFB00000-FFB7FFFF	System board extension for PnP BIOS
Memory FFB80000-FFBFFFFF	Unknown Device
Memory FFF00000-FFFFFFFF	System board extension for PnP BIOS
Port 0000-FFFF	PCI standard PCI-to-PCI bridge

Port 0020-0021	Programmable interrupt controller
Port 0040-0043	System timer
Port 0060-0060	Standard 101/102-Key or Microsoft Natural Keyboard
Port 0061-0061	System speaker
Port 0070-0071	System CMOS/real time clock
Port 0081-0083	Direct memory access controller
Port 0087-0087	Direct memory access controller
Port 0089-008B	Direct memory access controller
Port 008F-0091	Direct memory access controller
Port 00A0-00A1	Programmable interrupt controller
Port 00C0-00DF	Direct memory access controller
Port 00F0-00FF	Numeric data processor
Port 0170-0177	Secondary IDE controller (single fifo)
Port 0170-0177	Standard Dual PCI IDE Controller
Port 01F0-01F7	Primary IDE controller (single fifo)
Port 01F0-01F7	Standard Dual PCI IDE Controller
Port 02F8-02FF	Communications Port (COM2)
Port 0376-0376	Secondary IDE controller (single fifo)
Port 0376-0376	Standard Dual PCI IDE Controller
Port 0378-037F	Printer Port (LPT1)
Port 03B0-03BB	Standard PCI Graphics Adapter (VGA)
Port 03C0-03DF	Standard PCI Graphics Adapter (VGA)
Port 03F6-03F6	Primary IDE controller (single fifo)
Port 03F6-03F6	Standard Dual PCI IDE Controller
Port 03F8-03FF	Communications Port (COM1)
Port 0400-04BF	PCI bus
Port 04D0-04D1	PCI bus
Port 0500-051F	PCI System Management Bus
Port 0778-077B	Printer Port (LPT1)
Port 0CF8-0CFF	PCI bus
Port 9000-903F	Intel(R) PRO/100 VE Network Connection
Port 9000-9FFF	PCI standard PCI-to-PCI bridge
Port A000-A01F	Standard Universal PCI to USB Host Controller
Port A400-A41F	Standard Universal PCI to USB Host Controller
Port A800-A81F	Standard Universal PCI to USB Host Controller
Port AC00-AC07	Standard PCI Graphics Adapter (VGA)
Port B400-B4FF	PCI Multimedia Audio Device
Port B800-B83F	PCI Multimedia Audio Device
Port F000-F007	Primary IDE controller (single fifo)
Port F000-F00F	Standard Dual PCI IDE Controller
Port F008-F00F	Secondary IDE controller (single fifo)

AWARD BIOS Setup

The EmETX-i702 uses the Award PCI/ISA BIOS for the system configuration.
The Award BIOS setup program is designed to provide the maximum flexibility in configuring the system by offering various options which could be selected for end-user requirements. This chapter is written to assist you in the proper usage of these features.

To access AWARD PCI/ISA BIOS Setup program, press <Del> key. The Main Menu will be displayed at this time.


Phoenix - AwardBIOS CMOS Setup Utility
► Standard CMOS Features
► Advanced BIOS Features
► Advanced Chipset Features
► Integrated Peripherals
► Power Management Setup
► PnP/PCI Configurations
► PC Health Status
Load Optimized Defaults
Set Password
Save & Exit Setup
Exit Without Saving
Esc : Quit F9 : Menu in BIOS ↑ ↓ → ← : Select Item
F10 : Save & Exit Setup
Time, Date, Hard Disk Type...

Once you enter the AwardBIOS™ CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

Setup Items

The main menu includes the following main setup categories. Recall that some systems may not include all entries.

Standard CMOS Features
Use this menu for basic system configuration.

Advanced BIOS Features
Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features
Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals
Use this menu to specify your settings for integrated peripherals.

Power Management Setup
Use this menu to specify your settings for power management.

PnP / PCI Configuration
This entry appears if your system supports PnP / PCI.

PC Health Status
This entry helps you to monitor the status of PC.

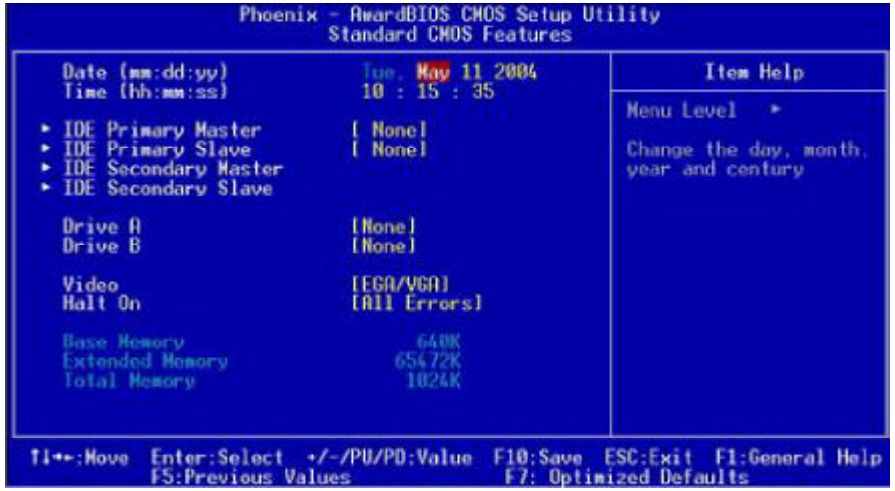
Load Optimized Defaults
Use this menu to load the BIOS default values that are factory settings for optimal performance system operations. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs.

Set Password
Use this menu to set User and Supervisor Passwords.

Save & Exit Setup
Save CMOS value changes to CMOS and exit setup.

Exit Without Save
Abandon all CMOS value changes and exit setup.

Standard CMOS Setup


Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features
Date (mm:dd:yy) Tue, May 11 2004
Time (hh:mm:ss) 10 : 15 : 35
IDE Primary Master [None]
IDE Primary Slave [None]
IDE Secondary Master
IDE Secondary Slave
Drive A [None]
Drive B [None]
Video [EGA/VGA]
Halt On [All Errors]
Base Memory 640K
Extended Memory 65472K
Total Memory 1024K
Item Help
Menu Level ▸
Change the day, month, year and century
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults

Date
The BIOS determines the day of the week from the other date information; this field is for information only.

Time
The time format is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Press the « or (key to move to the desired field . Press the PgUp or PgDn key to increment the setting, or type the desired value into the field.

IDE Primary Master/Slave
IDE Secondary Master/Slave
Options are in sub menu (see page 30)

Drive A, B
Select the correct specifications for the diskette drive(s) installed in the computer.

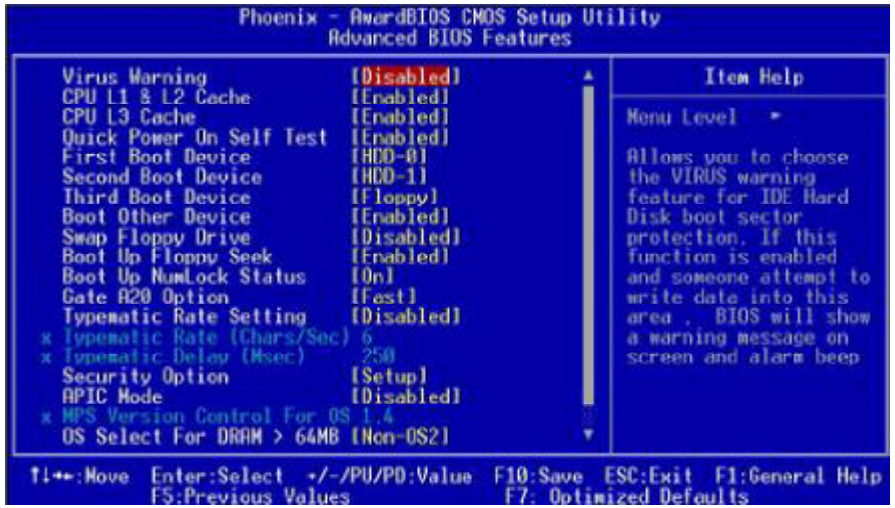
None : No diskette drive installed
360K ; 5.25 in 5-1/4 inch PC-type standard drive
1.2M ; 5.25 in 5-1/4 inch AT-type high-density drive
720K ; 3.5 in 3-1/2 inch double-sided drive
1.44M ; 3.5 in 3-1/2 inch double-sided drive
2.88M ; 3.5 in 3-1/2 inch double-sided drive

Video Select the type of primary video subsystem in your computer. The BIOS usually detects the correct video type automatically. The BIOS supports a secondary video subsystem, but you do not select it in Setup.

Halt On During the power-on self-test (POST), the computer stops if the BIOS detects a hardware error. You can tell the BIOS to ignore certain errors during POST and continue the boot-up process. These are the selections:

No errors	POST does not stop for any errors.
All errors	If the BIOS detects any non-fatal error, POST stops and prompts you to take corrective action.
All, But Keyboard	POST does not stop for a keyboard error, but stops for all other errors.
All, But Diskette	POST does not stop for diskette drive errors, but stops for all other errors.
All, But Disk/Key	POST does not stop for a keyboard or disk error, but stops for all other errors.

BIOS Features Setup


Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features
Virus Warning [Disabled]
CPU L1 & L2 Cache [Enabled]
CPU L3 Cache [Enabled]
Quick Power On Self Test [Enabled]
First Boot Device [HDD-0]
Second Boot Device [HDD-1]
Third Boot Device [Floppy]
Boot Other Device [Enabled]
Swap Floppy Drive [Disabled]
Boot Up Floppy Seek [Enabled]
Boot Up NumLock Status [On]
Gate A20 Option [Fast]
Typematic Rate Setting [Disabled]
x Typematic Rate (Chars/Sec) 6
x Typematic Delay (Msec) 250
Security Option [Setup]
APIC Mode [Disabled]
x MPS Version Control For OS 1.4
OS Select For DRAM > 64MB [Non-OS2]
Item Help
Menu Level ►
Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area , BIOS will show a warning message on screen and alarm beep
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults

Virus Warning
Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and beep.

Enabled Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.

Disabled No warning message will appear when anything attempts to access the boot sector or hard disk partition table.

CPU L1 & L2 Cache
This item allows you to enable/disable CPU L1 & L2 Cache.
The choice: Enabled, Disabled.

CPU L3 Cache
This item allows you to enable/disable CPU L3 Cache.
The choice: Enabled, Disabled.

Quick Power On Self Test
This category speeds up Power On Self Test (POST) after you power up the computer. If it is set to Enable, BIOS will shorten or skip some check items during POST.
Enabled : Enable quick POST. Disabled : Normal POST

First/Second/Third Boot Device
The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The choices are : Floppy, LS/ZIP, HDD, SCSI, CDROM, Disabled.

Swap Floppy Drive
If the system has two floppy drives, you can swap the logical drive name assignments. The choice: Enabled/Disabled.

Boot Up Floppy Seek
Seeks disk drives during boot up. Disabling speeds boot up.
The choice: Enabled/Disabled.

Boot Up NumLock Status
Select power on state for NumLock. The choice: Enabled/Disabled.

Gate A20 Option
Select if chipset or keyboard controller should control GateA20.
Normal A pin in the keyboard controller controls GateA20
Fast Lets chipset control GateA20

Typematic Rate Setting
Key strokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected.
The choice: Enabled/Disabled.

Security Option
Select whether the password is required every time the system boots or only when you enter setup.

System The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.

Setup The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

Note To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything and just press <Enter>, it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

APIC Mode
Select

OS Select For DRAM > 64MB
Select the operating system that is running with greater than 64MB of RAM on the system.The choice: Non-OS2, OS2.

Video BIOS Shadow
Enabled this copies the video BIOS from ROM to RAM. effectively enhancing performance, and reducing the amount of upper memory available by 32KB (the C0000~C7FFF area of memory between 640 KB and 1 MB is used).

C8000-CBFFF Shadow
Enabling any of the C8000~CBFFF segments allows components to move their firmware into these upper memory segments. However your computer can lock-up doing so, because some devices don't like being shadowed at those particular 16 KB segments of upper memory.

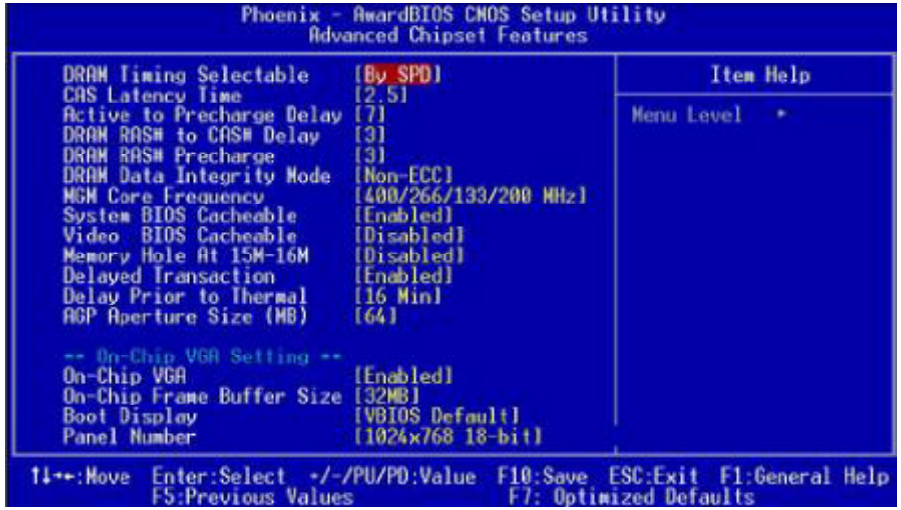
Small Logo(EPA) Show
[Enabled]: If you want to show your logo, please enable it.

[Disabled]: When this item disabled, logo(EPA) will not show on screen.

EEPROM Write Protect
All the configuration data is stored in a type of nonvolatile memor chip called an EEPROM. When it's enabled, it disables all writes to the configuration EEPROM. This locks your current configuration against accidenatal or unauthorized changes.

Note - In Windows 95, double click 'Computer' within Device Manager and select 'Memory'. This will tell you what segments (if any) are being shadowed For DOS you can use MSD.EXE to see what segments are claimed.
CC000-CFFFF - D0000-D3FFF - D4000-D7FFF - D8000-DBFFF and
DC000-DFFFF - Same as above.

Chipset Features Setup


Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features
DRAM Timing Selectable [By SPD]
CAS Latency Time [2.5]
Active to Precharge Delay [7]
DRAM RAS# to CAS# Delay [3]
DRAM RAS# Precharge [3]
DRAM Data Integrity Mode [Non-ECC]
MGM Core Frequency [400/266/133/200 MHz]
System BIOS Cacheable [Enabled]
Video BIOS Cacheable [Disabled]
Memory Hole At 15M-16M [Disabled]
Delayed Transaction [Enabled]
Delay Prior to Thermal [16 Min]
AGP Aperture Size (MB) [64]
-- On-Chip VGA Setting --
On-Chip VGA [Enabled]
On-Chip Frame Buffer Size [32MB]
Boot Display [VBIOS Default]
Panel Number [1024x768 18-bit]
Item Help
Menu Level ▸
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults

DRAM Timing Selectable
The option is "Manual" or "by SPD.

CAS Latency Time
When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing.

Active to Precharge Delay

Delay that results when two different rows in a memory chip are addressed one after another.

DRAM RAS-to-CAS Delay
This field let's you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. Fast gives faster performance; and Slow gives more stable performance. This field applies only when synchronous DRAM is installed in the system.

DRAM RAS Precharge
If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain data. Fast gives faster performance; and Slow givesmore stable performance. This field applies only when synchronous DRAM is installed in the system.

DRAM Data Integrity Mode

This BIOS feature controls the ECC feature of the memory controller. The option is ECC or Non-ECC.

MGM Core Frequency

The option includes 400/266/133/200 MHz.

System BIOS Cacheable
Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Video BIOS Cacheable
Select Enabled allows caching of the video BIOS, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Memory Hole At 15M-16M
You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirement.

Delayed Transaction
The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1

Delay Prior to Thermal

This BIOS feature is only valid for systems that are powered by 0.13£g Intel Pentium 4 processors with 512KB L2 cache. These processors come with a Thermal Monitor which actually consists of a on-die thermal sensor and a Thermal Control Circuit (TCC). The options includes 4 Minutes, 8 Minutes, 16 Minutes, 32.

AGP Aperture Size
This fielf determines the effective size of the Graphic Aperture used for a particular GMCH configuration. It can be updated by the GMCH-specific BIOS configuration sequence before the PCI standard bus enumeration sequence takes place. If it is not updated then a default value will select an aperture of maximum size.

On-Chip VGA

If your system contains a VGA controller and you want to activate it, select Enabled. The next option will become available.

On-Chip Frame Buffer Size

The On-Chip Frame Buffer Size can be set to 1MB or 8MB. This memory is shared with system memory.

Boot Display

This option let you select the display devices.

Panel Number

This option let you select the type of panel. Available options are:

640 x 480 18bit

800 x 600 18bit

1024 x 768 18bit

1280 x 1024 18bit

1400 x 1050 18bit 2H (Reduced Blanking LVDS)

1400 x 1050 18bit 2H (Non-reduced Blanking LVDS)

1600 x 1200 18bit 2H

1024 x 768 24bit

1280 x 1024 24bit 2H

1400 x 1050 24bit 2H

1600 x 1200 24bit 2H

Integrated Peripherals

Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals
OnChip IDE Device [Press Enter]
Onboard Device [Press Enter]
SuperIO Device [Press Enter]
Onboard Lan Boot ROM [Disabled]
Item Help
Menu Level ▸
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults

OnChip IDE Device
The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select Enabled to activate each channel separately.

Onboard Device
This field let you set onboard devices.

Super I/O Device

>Onboard LAN Boot ROM
The default setting is "Disabled" that to shorten the booting time.

Super I/O Device

Phoenix - AwardBIOS CMOS Setup Utility
SuperIO Device
Extrnal FDC Controller [Disabled]
Onboard Serial Port 1 [3F8/IRQ4]
Onboard Serial Port 2 [2F8/IRQ3]
UART Mode Select [Normal]
RxD , TxD Active [Hi,Lo]
IR Transmission Delay [Enabled]
UR2 Duplex Mode [Half]
Use IR Pins [IR-Rx2Tx2]
Onboard Parallel Port [378/IRQ7]
Parallel Port Mode [SPP]
EPP Mode Select [EPP1.7]
ECP Mode Use DMA [3]
Secondary I/O Controller [Disabled]
x FDC Controller Disabled
x Onboard Serial Port 3 Disabled
x Serial Port 3 Use IRQ IRQ10
x Onboard Serial Port 4 Disabled
x Serial Port 4 Use IRQ IRQ11
x Onboard Parallel Port 2 Disabled
Item Help
Menu Level ▸▸
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults

External FDC Controller

Select "Enabled" to activate the on-board FDD
Select "Disabled" to activate an add-on FDD

Onboard Serial Port 1 & 2
Select an address and corresponding interrupt for the first/second serial port. The default value for the first serial port is "3F8/IRQ4" and the second serial port is "2F8/IRQ3".

UART Mode Select
This item allows you to select UART mode. The choices: IrDA, ASKIR, Normal.

RxD, TxD Active

This BIOS feature allows you to set the infra-red reception (RxD) and transmission (TxD) polarity. Common Options : Hi, Hi or Lo, Lo or Hi, Lo or Lo, Hi

IR Transmission Delay

This option is to set whether the IR Transmission Delay is enabled. The available setting values are Disabled and Enabled.

IR2 Duplex Mode
This item allows you to select the IR half/full duplex function.

Use IR Pins
This item allows you to select IR transmission routes, IR-Rx2Tx2, RxD2 and TxD2.

Onboard Parallel Port
Select the interrup of Parallel Port.

Onboard Parallel Mode
Select an operating mode for the parallel port. Mode options are 3BC/IRQ7, 378/IRQ7, 278/IRQ5, and Disable.

EPP Mode Select
You can use this feature to choose which version of EPP to use. For better performance, use EPP 1.9. But if you are facing connection issues, try setting it to EPP 1.7. Most of the time, EPP 1.9 will work perfectly well.

ECP Mode Use DMA
Select a DMA channel if parallel Mode for using ECP mode: 3 or 1.

Secondary I/O Controller
This item let you disable or enable Secondary I/O Controller.

Power Management Setup

Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup
Power-Supply Type [AT]
x ACPI Function Enabled
Power Management [Min Saving]
Video Off Method [DPMS]
Video Off In Suspend [Yes]
Suspend Type [Stop Grant]
MODEM Use IRQ [NA]
Suspend Mode 1 Hour
HDD Power Down 15 Min
x Soft-Off by PWR-BTTN Instant-Off
CPU THRM-Throttling [50.0%]
x Power-On by LAN Disabled
x Power On by Ring Disabled
x Resume by Alarm Disabled
x Date(of Month) Alarm 0
x Time(hh:mm:ss) Alarm 0 : 0 : 0
** Reload Global Timer Events **
Primary IDE 0 [Disabled]
Item Help
Menu Level ►
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults

Power Supply Type
Select the power supply type.

Power Management
There are 4 selections for Power Management, 3 of which have fixed mode :

Disabled (default)	No power management. Disables all four modes.
Min. Power Saving	Minimum power management. Doze Mode = 1 hr., Standby Mode = 1 hr., Suspend Mode = 1 hr.,
Max. Power Saving	Maximum power management -- ONLY AVAILABLE FOR SL CPU's.. Doze Mode = 1 min., Standby Mode = 1 min., Suspend Mode = 1 min.
User Defined	Allows you to set each mode individually. When not disabled, each of the ranges are from 1 min. to 1 hr.

Video Off Method
This determines the manner in which the monitor is blanked.

V/H SYNC+Blank	cause the system to turn off the vertical and horizontal synchronization signals and writes blanks to the screen.
Blank Screen	This option only writes blanks to the screen.
DPMS	Initial display power management signaling.HDD Power Down is always set independently

Video Off In Suspend

Controls what causes the display to be switched off
Suspend -> Off Always On All Mode -> Off

Suspend Type
S1 (POS) Power On suspend
All devices are powered up except for the clock synthesizer. The Host and PCI clocks are inactive and PIIX4 provides control signals and 32-kHz Suspend Clock (SUSCLK) to allow for DRAM refresh and to turn off the clock synthesizer. The only power consumed in the system is due to DRAM Refresh and leakage current of the powered devices. When the system resumes from POS, PIIX4 can optionally resume without resetting the system, can reset the processor only, or can reset the entire system. When no reset is performed, PIIX4 only needs to wait for the clock synthesizer and processor PLLs to lock before the system is resumed. This takes typically 20 ms.

S3 (STR) Suspend To RAM
Power is removed from most of the system components during STR, except the DRAM. Power is supplied to Suspend Refresh logic in the Host Controller, and RTC and Suspend Well logic in PIIX4. PIIX4 provides control signals and 32-kHz Suspend Clock (SUSCLK) to allow for DRAM refresh and to turn off the clock synthesizer and other power planes.

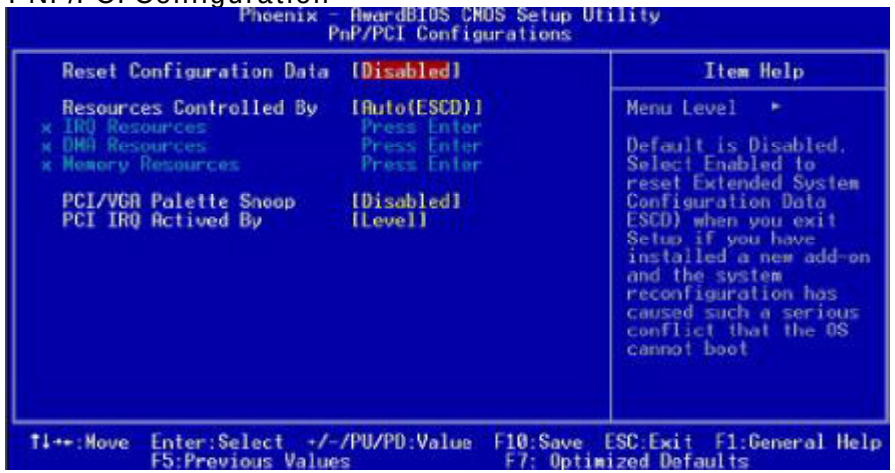
Modem Use IRQ
Name the interrupt request (IRQ) assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system.

Suspend Mode
When the suspend mode has been enabled after the selected period of system inactivity, all devices except CPU will be shut down.

CPU THRM-Throtting

This BIOS feature determines the clock speed of the processor when it is in the Suspend To RAM (STR) power saving mode. It has no effect when the processor is in normal active mode. Available options for this BIOS feature are set values of the processor's power consumption. They range from a low of 12.5% to a high of 87.5%.

PNP/PCI Configuration


Phoenix - AwardBIOS CMOS Setup Utility
PnP/PCI Configurations
Reset Configuration Data [Disabled]
Resources Controlled By [Auto(ESCD)]
x IRQ Resources Press Enter
x DMA Resources Press Enter
x Memory Resources Press Enter
PCI/VGA Palette Snoop [Disabled]
PCI IRQ Actived By [Level]
Item Help
Menu Level ▸
Default is Disabled. Select Enabled to reset Extended System Configuration Data ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F7: Optimized Defaults

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components.

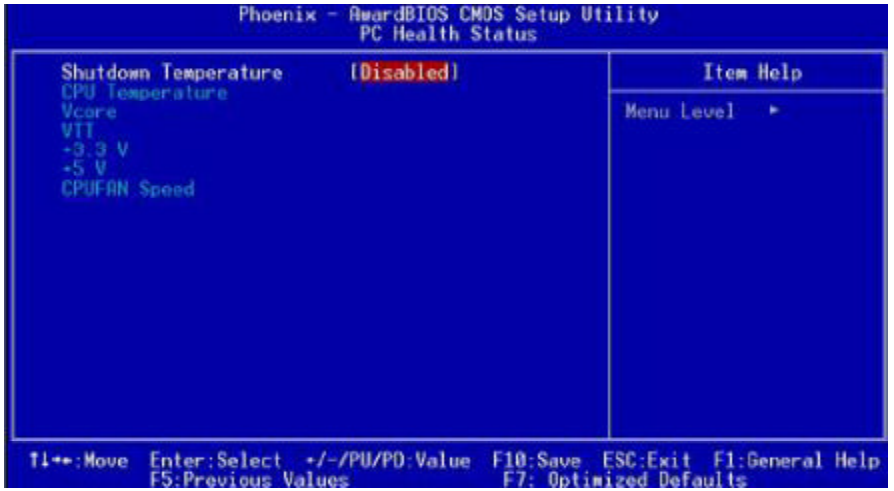
Reset Configuration Data
Normally, you leave this field Disabled. Select Enabled to reset ESCD (Extended System Configuration Date) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.

Resource Controlled By
The Award Play and Play BIOS can automatically configure all the boot and Plug-and-Play compatible devices. If you select Auto, all the interrupt request (IRQ) and DMA assignment fields disappear, as the BIOS automatically assigns them.

PCI/VGA Palette Snoop
Normally this option is always Disabled! Nonstandard VGA display adapters such as overlay cards or MPEG video cards may not show colors properly. Setting Enabled should correct this problem. If this field set Enabled, any I/O access on the ISA bus to the VGA card's palette registers will be reflected on the PCI bus. This will allow overlay cards to adapt to the changing palette colors.

PCI IRQ Actived by
[Level]

PC Health Status



This section describes CPU tempeare for the system.

Shutdown Temperature
This item allows you to set up the CPU shutdowm Temperature. This item only effective under Windows 98 ACPI mode.

POST Codes

The following codes are not displayed on the screen. They can only be viewed on the LED display of a so called POST card. The codes are listened in the same order as the according functions are executed at PC startup. If you have access to a POST Card reader, you can watch the system perform each test by the value that's displayed. If the system hangs (if there's a problem) the last value displayed will give you a good idea where and what went wrong, or what's bad on the system board.

CODE	DESCRIPTION OF CHECK
CFh	Test CMOS R/W functionality.
C0h	Early chipset initialization: -Disable shadow RAM -Disable L2 cache (socket 7 or below) -Program basic chipset registers
C1h	Detect memory -Auto-detection of DRAM size, type and ECC. -Auto-detection of L2 cache (socket 7 or below)
C3h	Expand compressed BIOS code to DRAM
C5h	Call chipset hook to copy BIOS back to E000 & F000 shadow RAM.
0h1	Expand the Xgroup codes locating in physical address 1000:0
02h	Reserved
03h	Initial Superio_Early_Init switch.
04h	Reserved
05h	1. Blank out screen 2. Clear CMOS error flag
06h	Reserved
07h	1. Clear 8042 interface 2. Initialize 8042 self-test
08h	1. Test special keyboard controller for Winbond 977 series Super I/O chips. 2. Enable keyboard interface.
09h	Reserved
0Ah	1. Disable PS/2 mouse interface (optional). 2. Auto detect ports for keyboard & mouse followed by a port & interface swap (optional). 3. Reset keyboard for Winbond 977 series Super I/O chips.
0Bh	Reserved
0Ch	Reserved
0Dh	Reserved
0Eh	Test F000h segment shadow to see whether it is R/W-able or not. If test fails, keep beeping the speaker.
0Fh	Reserved
10h	Auto detect flash type to load appropriate flash R/W codes into the run time area in F000 for ESCD & DMI support.
11h	Reserved
12h	Use walking 1's algorithm to check out interface in CMOS circuitry. Also set real-time clock power status, and then check for override.
13h	Reserved
14h	Program chipset default values into chipset. Chipset default values are MODBINable by OEM customers.
15h	Reserved
16h	Initial onboard clock generator if Early_Init_Onboard_Generator is defined. See also POST 26h.
17h	Reserved
18h	Detect CPU information including brand, SMI type (Cyrix or Intel) and CPU level (586 or 686).
19h	Reserved
1Ah	Reserved
1Bh	Initial interrupts vector table. If no special specified, all H/W interrupts are directed to SPURIOUS_INT_HDLR & S/W interrupts to SPURIOUS_soft_HDLR.
1Ch	Reserved
1Dh	Initial EARLY_PM_INIT switch.

1Eh	Reserved
1Fh	Load keyboard matrix (notebook platform)
20h	Reserved
21h	HPM initialization (notebook platform)
22h	Reserved
23h	1. Check validity of RTC value: e.g. a value of 5Ah is an invalid value for RTC minute. 2. Load CMOS settings into BIOS stack. If CMOS checksum fails, use default value instead.
24h	Prepare BIOS resource map for PCI & PnP use. If ESCD is valid, take into consideration of the ESCD's legacy information.
25h	Early PCI Initialization: -Enumerate PCI bus number. -Assign memory & I/O resource -Search for a valid VGA device & VGA BIOS, and put it into C000:0
26h	1. If Early_Init_Onboard_Generator is not defined Onboard clock generator initialization. Disable respective clock resource to empty PCI & DIMM slots. 2. Init onboard PWM 3. Init onboard H/W monitor devices
27h	Initialize INT 09 buffer
28h	Reserved
29h	1. Program CPU internal MTRR (P6 & PII) for 0-640K memory address. 2. Initialize the APIC for Pentium class CPU. 3. Program early chipset according to CMOS setup. Example: onboard IDE controller. 4. Measure CPU speed.
2Ah	Reserved
2Bh	Invoke Video BIOS
2Ch	Reserved
2Dh	1. Initialize double-byte language font (Optional) 2. Put information on screen display, including Award title, CPU type, CPU speed, full screen logo.
2Eh	Reserved
2Fh	Reserved
30h	Reserved
31h	Reserved
32h	Reserved
33h	Reset keyboard if Early_Reset_KB is defined e.g. Winbond 977 series Super I/O chips. See also POST 63h.
34h	Reserved
35h	Test DMA Channel 0
36h	Reserved
37h	Test DMA Channel 1.
38h	Reserved
39h	Test DMA page registers.
3Ah	Reserved
3Bh	Reserved
3Ch	Test 8254
3Dh	Reserved
3Eh	Test 8259 interrupt mask bits for channel 1.
3Fh	Reserved
40h	Test 8259 interrupt mask bits for channel 2.
41h	Reserved
42h	Reserved
43h	Test 8259 functionality.
44h	Reserved
45h	Reserved
46h	Reserved
47h	Initialize EISA slot

48h	Reserved
49h	1. Calculate total memory by testing the last double word of each 64K page. 2. Program write allocation for AMD K5 CPU.
4Ah	Reserved
4Bh	Reserved
4Ch	Reserved
4Dh	Reserved
4Eh	1. Program MTRR of M1 CPU 2. Initialize L2 cache for P6 class CPU & program CPU with proper cacheable range. 3. Initialize the APIC for P6 class CPU. 4. On MP platform, adjust the cacheable range to smaller one in case the cacheable ranges between each CPU are not identical.
4Fh	Reserved
50h	Initialize USB Keyboard & Mouse.
51h	Reserved
52h	Test all memory (clear all extended memory to 0)
53h	Clear password according to H/W jumper (Optional)
54h	Reserved
55h	Display number of processors (multi-processor platform)
56h	Reserved
57h	1. Display PnP logo 2. Early ISA PnP initialization -Assign CSN to every ISA PnP device.
58h	Reserved
59h	Initialize the combined Trend Anti-Virus code.
5Ah	Reserved
5Bh	(Optional Feature) Show message for entering AWDFLASH.EXE from FDD (optional)
5Ch	Reserved
5Dh	1. Initialize Init_Onboard_Super_IO 2. Initialize Init_Onbaord_AUDIO.
5Eh	Reserved
5Fh	Reserved
60h	Okay to enter Setup utility; i.e. not until this POST stage can users enter the CMOS setup utility.
61h	Reserved
62h	Reserved
63h	Reset keyboard if Early_Reset_KB is not defined.
64h	Reserved
65h	Initialize PS/2 Mouse
66h	Reserved
67h	Prepare memory size information for function call: INT 15h ax=E820h
68h	Reserved
69h	Turn on L2 cache
6Ah	Reserved
6Bh	Program chipset registers according to items described in Setup & Auto-configuration table.
6Ch	Reserved
6Dh	1. Assign resources to all ISA PnP devices. 2. Auto assign ports to onboard COM ports if the corresponding item in Setup is set to "AUTO".
6Eh	Reserved
6Fh	1. Initialize floppy controller 2. Set up floppy related fields in 40:hardware.
70h	Reserved
71h	Reserved
72h	Reserved

73h	(Reserved
74h	Reserved
75h	Detect & install all IDE devices: HDD, LS120, ZIP, CDROM…..
76h	(Optional Feature) Enter AWDFLASH.EXE if: -AWDFLASH.EXE is found in floppy drive. -ALT+F2 is pressed.
77h	Detect serial ports & parallel ports.
78h	Reserved
79h	Reserved
7Ah	Detect & install co-processor
7Bh	Reserved
7Ch	Init HDD write protect.
7Dh	Reserved
7Eh	Reserved
7Fh	Switch back to text mode if full screen logo is supported. - If errors occur, report errors & wait for keys - If no errors occur or F1 key is pressed to continue : wClear EPA or customization logo.
80h	Reserved
81h	Reserved

E8POST.ASM starts

82h	1. Call chipset power management hook. 2. Recover the text fond used by EPA logo (not for full screen logo) 3. If password is set, ask for password.
83h	Save all data in stack back to CMOS
84h	Initialize ISA PnP boot devices
85h	1. USB final Initialization 2. Switch screen back to text mode
86h	Reserved
87h	NET PC: Build SYSID Structure.
88h	Reserved
89h	1. Assign IRQs to PCI devices 2. Set up ACPI table at top of the memory.
8Ah	Reserved
8Bh	1. Invoke all ISA adapter ROMs 2. Invoke all PCI ROMs (except VGA)
8Ch	Reserved
8Dh	1. Enable/Disable Parity Check according to CMOS setup 2. APM Initialization
8Eh	Reserved
8Fh	Clear noise of IRQs
90h	Reserved
91h	Reserved
92h	Reserved
93h	Read HDD boot sector information for Trend Anti-Virus code
94h	1. Enable L2 cache 2. Program Daylight Saving 3. Program boot up speed 4. Chipset final initialization. 5. Power management final initialization 6. Clear screen & display summary table 7. Program K6 write allocation 8. Program P6 class write combining
95h	Update keyboard LED & typematic rate
96h	1. Build MP table 2. Build & update ESCD 3. Set CMOS century to 20h or 19h 4. Load CMOS time into DOS timer tick 5. Build MSIRQ routing table.
FFh	Boot attempt (INT 19h)